**Raising a Power to a Power**

\*Power means exponent

**Example:**  - The 4 means that we are multiplying  by itself 4 times. We get . Remember from before that in order to multiply exponents

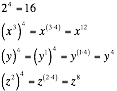
with the same base, we keep the base and ADD the exponents. Therefore, 

**The Shortcut:** Look at our original problem and our final answer: . How can we use the exponents from the original problem to get the exponent in the answer? We can multiply them. 

Therefore, **when we are raising a power to a power, we can keep the same base and MULTIPLY the exponents.**

**What if we have more than one power being raised to another power?**

For example, . In this case, instead of raising the entire term in the parentheses to the 4th power, we raise each base and exponent to the 4th power:



When we combine everything, we get .